1.01 PROJECT SUMMARY SHEET

PROJECT TITLE NAME: Establishment of the Prairie Waters Education and Research Center

NAME AND ADDRESS, TELEPHONE AND E-MAIL OF LEAD PROJECT SPONSOR/ SUBGRANTEE:

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STATE CONTACT PERSON: Andre DeLorme **TITLE:** Center Director

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STATE: North Dakota **WATERSHED**: Statewide

HYDROLOGIC UNIT CODE: NA

HIGH PRIORITY WATERSHED:(YES/NO): NO

TMDL UNDER DEVELOPMENT: PENDING ____ IMPLEMENTATION ____

PROJECT TYPES	WATERBODY TYPES	NPS CATEGORY
[ ] STAFFING & SUPPORT	[ ] GROUNDWATER	[ ] AGRICULTURE
[ ] WATERSHED	[ ] LAKES/RESERVOIRS	[ ] URBAN RUNOFF
[ ] GROUNDWATER	[ ] RIVERS	[ ] SILVICULTURE
[X] I&E	[ ] STREAMS	[ ] CONSTRUCTION
	[ ] WETLANDS	[ ] RESOURCE EXTRACTION
	[ ] OTHER	[ ] STOWAGE/LAND DISPOSAL
		[ ] HYDRO
		[ ] OTHER

PROJECT LOCATION: STATEWIDE X LATITUDE _____MIN. _____ LONGITUDE ___ MIN.

SUMMARIZATION OF MAJOR GOALS: We propose to start a Center that would be a statewide resource for water education, research, and management. This center would have four main areas of focus: educational activities for students, teacher workshops, professional workshops, and research on aquatic biological resources. Its focus will be on the water resources of North Dakota including wetlands, rivers, streams, lakes, and reservoirs. It will partner with a variety of government agencies to enhance their programs as well as local schools to provide quality educational activities. This Center will be based in a former school building, thus providing a physical presence for the Center.

FY2010 319 Funds requested: $731,946; Match $497,964 ; Other Federal Funds $0; 319 Funded Fulltime Personnel: 1.89

Length of proposal: 5 years

Total Project Cost: $1,229,910

PROJECT DESCRIPTION:

We aim to raise awareness of non point source (NPS) pollution through the activities of a new Center dedicated to water education. An important component of this proposal is that it will establish the Center in a specific building, providing an actual physical presence. In essence it will establish a learning center dedicated to water education that serves a wide variety of clientele including students, teachers, producers, and resource personnel.

This will be a collaborative effort, working with agencies such as the North Dakota Department of Health, the State Water Commission, the North Dakota Game and Fish, the North Dakota Department of Parks and Recreation, and state Soil Conservation districts to produce a set of activities that cover a range of water issues in relation to NPS. This center will work with currently established educational entities such as Project Wet, River Watch, and Envirothon to provide educational experiences about water issues to a wide range of clients. Activities related to the Center include

- Educational activities for school groups
    - Bringing in school groups to the Center for educational activities related to water and NPS pollution.
    - Doing outreach programs at schools for grades K-3.
    - Acting as a support center for the River Watch program in North Dakota.
- Provide workshops for teachers in water education.
- Provide a site for workshops for producers and resource professionals.
- House a research lab that addresses water issues in North Dakota.

2.0 STATEMENT OF NEED

2.1 Non point source pollution is a problem that can have many negative effects on the state's water resources. It is important that the causes and effects of NPS pollution are well understood by citizens of our state. Knowledge of not only what NPS pollution is, but also how the amount of NPS pollution is affected by a wide variety of water issues ranging from flooding, to farming practices, to drought, to wetland drainage are important issues. Our Center intends to examine these components of NPS pollution in a variety of ways. The Center will give K-12 students hands on activities that demonstrate many features of NPS pollution. An excellent example of this is the River

Watch program for which the Center will act as a coordinating partner. Currently there is a strong River Watch program in the Red River Valley, mainly focused in Minnesota. The program engages high school students in doing river chemistry monitoring on rivers and streams in eastern North Dakota and western Minnesota. While they have recently obtained funding to promote the program in Minnesota, the North Dakota schools have little support. We were specifically approached by River Watch to expand the opportunities to students in North Dakota. We would not restrict ourselves to the Red River Valley and would work with schools from throughout the state of North Dakota to establish viable River Watch programs. An important focus of all our activities with students will be active participation in their learning and, whenever possible, getting them outside and either next to, on, or in the water. Educational research has shown that these types of active learning experiences do a better job of engaging students and lead to a better understanding of scientific principles.

Another need this Center will fulfill is to provide teachers the information and activities to help educate their students on water related issues. Even many high school science teachers with a strong Biology background have little formal training in water issues. Most elementary school teachers have very little science training at all. By providing teachers with workshops and having them participate in activities with their classes we will facilitate teacher knowledge in water issues in general and NPS in particular.

The Center will also act as a place to bring resource professionals and agricultural professionals together for workshops and discussion related to NPS pollution. This idea actually was not part of our original plan, but came from discussions with various professionals we contacted in preliminary discussions about the center. They expressed the need for this type of training. Subsequently we have contacted several people who are very interested in this possibility (see coordination plan for details), which indicates a significant need for this role in the Center.

While there may be some concern about overlap between the Center and the other NPS educational programs such as Project WET, Trees, Envirothon, and ECO Ed. camp; we see this as a synergistic relationship that will hopefully strengthen all programs. For example, we have had talks with the director of Project WET, Bill Sharff, and we can cooperate in providing him a place he can do many of his workshops. He would use his funds, but has a classroom and field set up to enhance his workshops. We have talked to representatives of the other programs and are confident that we can work together in a similar manner.

2.2 The Center will target a wide audience with three main areas. The first, school groups, are an excellent audience for our Center because these students are the future of our state and instilling knowledge of water issues will produce a more concerned and informed group of citizens. The second area, teachers and educators, are also

important targets for our Center. Elementary education teachers especially have little or no training in NPS pollution and water issues education. To put it bluntly, teachers are more likely to teach subjects that they are familiar with and understand themselves. Providing them with information and support will greatly increase awareness and also lead to more classroom activities on water issues. The collaborations with other programs such as Project Wet, Envirothon, and River Watch will play a strong role in reaching both school groups and educators. Finally, working with resource personnel, farmers, and producers will allow us to provide a service to several state agencies and to North Dakota's agricultural businesses.

3.0 PROJECT DESCRIPTION

As stated earlier, the Center will have four main areas of focus. A further description of those areas follows.

Educational activities for school groups – Our work with school groups will be mainly on site. In the beginning we envision at least 50 different school groups a year coming to the Center for activities. We expect this number to grow as more educators become familiar with our programs. Some of these activities will be done at the Center, others will be done as hands-on field trips to any one of several aquatic resources in the near vicinity of the Center. We will also develop several activities for in school presentations, especially for K-3 grades. An example is putting together a collection of aquatic insects in display boxes and vials and then bringing them to a classroom and talking about the types of aquatic insects, their adaptations for living in water, and how pollution may affect them.

One of the prime responsibilities of the Center will be to act as the coordination center for River Watch. River Watch is a program that involves a team of high school students in river monitoring. The objectives of the program are as follows:

- Improved citizen awareness and understanding of watersheds and proper land and water stewardship practices.
- Sustainable citizen based, scientifically sound monitoring using standard methods, equipment, and training.
- Availability of useful, reliable, comparable water quality data for analysis, evaluation, and decision making.
- Sound resource management decisions based on quality data and informed discussion.

The students take water quality measurements in a river or stream in their area and are encouraged to examine how certain factors affect the water quality. This program does an excellent job of introducing students to water quality parameters and what they mean in relation to NPS pollution. Currently there is a strong River Watch program in the Red

River Valley. It has over 25 high schools, most of them in Minnesota, doing river chemistry monitoring on rivers and streams in eastern North Dakota and western Minnesota. They would like to expand the opportunities to students in North Dakota and have requested our assistance in doing this. We would like to expand the program across the state of North Dakota. In addition River Watch would like to use our expertise in Biological monitoring to enhance the program on both sides of the Red River. In year one the Center will identify five high schools to begin developing the program. Three additional schools will be added in year 4. We will provide training for the teacher and students at the Center and be available to visit the school as needed for trouble shooting and support services. In addition the Center will purchase the equipment and supplies needed for the monitoring and supply it to the schools. If a school decides to leave the program we can take back the equipment and provide it to another school. We will also cover 60% of the schools cost for travel and substitute teachers, meaning the school is responsible for 40% of the cost. This ensures that schools have a commitment to the program.

In addition to River Watch, we will develop a range of activities for school groups. These will range from summer to winter activities. Examples of winter programs are:

- Winter lake ecology – Clauson springs dam (classroom/outdoor)
- Winter stream ecology – Spring Creek and Sheyenne River (classroom/outdoor)
- Winter Marsh ecology (classroom/outdoor)
- Know your bugs (classroom, utilizing VCSU Macroinvertebrate collection)
- Everything about Clams! (classroom, utilizing VCSU Macroinvertebrate collection)

We anticipate winter as being a slower time with an average of 2 -3 school groups a week. During the fall and spring we will see more groups. Example activities include:

- Collecting aquatic critters
- Properties of a Lake, how to do a Lake profile.
- How do low-head dams affect rivers and streams?
- What's in the water?
- Chemical analysis of water.
- Mussel mania!
- The Importance of Wetlands.

We also anticipate working with some groups such as scouts and 4H during the summer.

Teacher training – The Center will provide workshops in water education for teachers. These would include workshops for Project Wet and training for River Watch, but also will include other workshops. We will have at least two summer workshops for River Watch each summer to help organize and train teachers. In addition we will hold at least one River Watch symposium where teachers and their students will come and present their work. This workshop will take place during the school year, most likely in early Spring.

As stated above, we will also develop our own workshops for teachers. These will be given during the summer and may be taken for continuing education credits. Workshops will be given on such topics as "Watershed Activities" which would use a combination of classroom and field trip experience to illustrate what a watershed is, how it is delineated, and how it can be affected by NPS. We will also develop workshops on aquatic macroinverebrates and the concept of biomonitoring. These are only two of a wide variety of possible workshops for teachers we will develop.

We are also looking at developing pre-service workshops for students in our Science education programs and elementary education programs. We see the Center as being a very useful resource for area teachers.

Professional workshops – The site will provide an avenue for agencies to provide training related to water management issues. For instance, the North Dakota Department of Health (NDDH) has expressed interest in using the center for training Soil Conservation District (SCD) personnel in their biomonitoring protocols and other activities. We will provide yearly workshops for SCD personnel to give them the background and knowledge they need to better understand biomonitoring concepts and protocols. This will work particularly well since the VCSU Macroinvertebrate Lab is the contract lab for the NDDH's aquatic macroinvertebrate biomonitoring program. We will also cover a wide variety of other water related issues based on discussions with Soil Conservation District people. Another possibility is to hold wetland mitigation workshops for farmers and ranchers. We are currently talking with a variety of agencies in the state to see how we can assist in their water management roles.

VCSU Macroinvertebrate Lab Research – This research lab focuses on aquatic biological resources and water quality in North Dakota. It is currently the identification lab for the NDDH's aquatic macroinvertebrate biomonitoring program and has had many contracts and grants related to North Dakota waters and water quality. In addition, the lab oversees two popular websites that focus on aquatic macroinvertebrates found in North Dakota waters. These sites were developed by a previous 319 grant and will be a valuable resource for the Center. Much of the information, data, and even biological

samples from these projects and future projects would be available for use by the other three areas of focus for the center. *This proposal does not include any direct funding for this component of the Center.* It is the responsibility of the Center Director to find research funds. The fact that the Center and the Macroinvertebrate Lab will have separate funding accounts set up with the VCSU Business Office ensures that funding will be separate.

This Center will be part of Valley City State University. The designation of the Center has been approved by the State Board of Higher Education at their meeting in September of 2009. The Center will be housed at the Kathryn School, an approximately 14,000 square foot facility which has been known as the Kathryn Center and run by Corporate Adventures as a team building facility. We are putting together a memorandum of agreement with the City of Kathryn for a lease agreement that goes into effect the Spring of 2010. This building has a unique architecture which makes it very conducive to our plans. It has four large classrooms with an area of approximately 1800 sq. ft each. These can be further subdivided to provide a total of 8 classrooms. We intend to dedicate two of the large classrooms for onsite educational activities. A third classroom will be converted to lab space for the VCSU Macroinvertebrate Lab. The fourth classroom will be used for storage or possibly converted into overnight sleeping facilities. The building also has a large common area in the center of the building. We will use this for displays and educational dioramas. We anticipate developing 15 – 20 educational displays on such topics as “What is Non Point Source Pollution?”, “Mussels of North Dakota Rivers”, and “What is the Value of a Wetland?”. This area could also act as a way to disseminate information about other 319 projects. We could work with 319 project directors to display informative posters about the impact of their projects on NPS pollution. We will also have aquariums with aquatic organisms such as mussels, turtles, insects, and fish on display. Kathryn is located 17 miles south of Valley City in the beautiful Sheyenne River Valley and is within a 10 mile radius of a variety of aquatic resources including the Sheyenne River, Clausen Springs and Clausen Springs Dam, Little Yellowstone, and several large wetlands.

The Center will have an advisory board to oversee its work and provide input for future directions. It will meet twice a year to review the work of the Center and offer suggestions for future improvement. A list of prospective board members is included in the Coordination Plan of this document, section 4.1.

3.1 Goal. The mission of the Prairie Water Education and Research Center is to provide a site dedicated to water education, research, and management in North Dakota. In addition, there is currently much concern and emphasis on the quality of Science, Technology, Engineering, and Math (STEM) education. This Center will take an active role in addressing those concerns.

3.2 Objectives/Tasks: Specific objectives and underlying tasks for the FY 2010 Prairie Waters Education and Research Center for the period of July 1, 2010 – June 30, 2015 are defined in this section.

Objective 1. Update Kathryn School to meet our needs and staff the center.

Task 1. Staff the PWERC with a 50% time director, fulltime education specialist, and 67% time staff person. Dr. Andre DeLorme, Associate Professor of Biology and Director of the VCSU Macroinvertebrate Lab at VCSU, will be the Director of the Center. He will have a half time teaching position and a half time director position (although the grant will pay for ¼ time, the university will cover the other ¼ time). He will be responsible for all major Center decisions and grant writing. He is also in charge of the research component of the Center. The Education Coordinator/Presenter will be a full time position. This person will be responsible for designing and delivering educational activities for student groups, developing and implementing teacher workshops, developing displays for the commons area, and day to day activities at the Center. This position will be a new hire. The Lab Manager/Presenter will oversee the day to day activities of the research lab in the Center as well as help present activities to school groups. The current Lab Manager of the VCSU Macroinvertebrate Lab, Louis Wieland, will fill this position. This is also a full time position with 8 months paid by this proposal and the other 4 months will be paid by research grants and other contracts.

Product: An effective staff of 1.89 FTE for the Center.

Estimated Cost: $552,956 – 319 funds

Task 2. Update Kathryn Center. This includes improvements on the heating/cooling system, supplying the furniture for the classrooms, purchasing 15 dissecting scopes for educational uses, adding projectors and screens to the two classrooms and the main hall, and moving the VCSU Macroinvertebrate lab into the building.

Product: A well equipped learning center for water education.

Estimated Cost: $75,000 - $0 from 319; $75,000 VCSU funds and In-kind match (furniture and moving expenses)

Objective 2. Provide educational activities for school groups.

Task 3. Advertise the Center to Educators and Schools throughout North Dakota. We will use pamphlets and other mailings along with a website to make educators aware of our facility

Product:	Pamphlets and other promotional material plus postage.
Cost:	$2600 – 319 funds

Task 4. Establish the River Watch Program in North Dakota. We will publicize the program and identify five high schools to pilot River Watch in North Dakota. In year 4 we will add an additional 3 schools. We will provide equipment and funds to partially cover the costs of travel, supplies, and hiring substitute teachers these schools.

Products:	Purchase of five YSI multiprobe sondes for use by the schools in year one with an additional 3 sondes in year 4. This also includes funds for misc. supplies along with 60% of the costs for transportation and hiring of substitute teachers.
Estimated Cost	$61,850 – $53,350 from 319; $8500 In-kind match (school contribution to travel and substitute teachers)

Task 5. Provide onsite educational activities to North Dakota K-12 schools. We anticipate at least 50 school groups the first year with that number increasing over time. We will work with, and expand, several programs that are already in place such as Project Wet to create the activities for the students.

Product:	Cost for local transport to area aquatic resources, materials for use in activities, and cost of transporting students to the center.
Estimated Cost:	$35,100 - $8100 from 319; $27,000 In-kind match (school costs for transportation of students to center)

Task 6. Provide outreach services to North Dakota K-12 schools.

Product:	Delivery of water education activity in school classrooms. Costs cover travel and materials.
Estimated Cost:	$6400 - 319 funds.

Task 7. Produce educational materials and displays for use in the Center and for distribution to K-12 schools.

Product: Displays and aquariums in center Hall; purchase of a large format poster printer; and materials for posters, pamphlets and other print materials

Estimated Cost: $18,400 - $8,400 in 319 funds; $10,000 in VCSU matching funds

Objective 3. Provide Teacher training related to water issues.

Task 8. Provide teacher training for River Watch

Product: Two workshops per year for students and teachers involved in River Watch program.

Estimated Cost: $10,700 - $6,900 in 319 funds; $3,800 in kind match, (travel costs)

Task 9. Provide teacher workshops for Water education. These will be independent of any Project Wet workshops held at the center.

Product: Workshops to improve teacher knowledge in water issues. We anticipate producing 2- 3 workshops the first year and 3 – 5 in subsequent years depending on demand.

Estimated Cost: $9,200 – 319 funds

Task 10. Work with the VCSU Education Dept. to improve teacher education.

Product: Program and activities to improve pre-service elementary education and Secondary education science preparation.

Estimated Cost: $0

Objective 4. Provide a site for Professional workshops.

Task 11. Present annual Biomonitoring workshops to Soil Conservation District personnel. We will plan on holding annual workshops for Soil Conservation District personnel to focus on the NDDH biomonitoring program.

Product: Yearly biomonitoring workshops to SCD personnel.

Estimated Cost: $11,000 – 319 funds

Task 12. Survey the need for additional workshops.

Product: Mailings, travel, and telephone conversations with state agencies.

Estimated Cost: $1,800 – 319 funds

Objective 5. House the VCSU Macroinvertebrate Research Lab.

Task 13. Provide the space for the lab and integrate components of the research, specimens and data for example, into the educational mission of the Center.

Product: Integration of VCSU Macroinvertebrate Lab into the educational aspects of the Center.

Estimated Cost: $0, The work of the research lab will be funded by outside sources, integration of specimens and data will be done as part of the workload of staff identified in Task 1.

Objective 6. Assess and monitor the success of the Center.

Task 14. Develop and administer assessment components. We will document all visitors to the Center to gauge the amount and type of usage the Center receives. In addition we will develop questionnaires and other assessment tools to for all workshops and educational activities.

Product : Questionnaires and documentation of usage.

Estimated Cost: $2,350 – 319 funds

Task 15. Assemble an advisory board. The board will meet twice yearly to oversee the workings of the Center.

Product: Travel and meeting costs.

Estimated Cost: $2,350 – 319 funds

3.3 The milestone table for this project can be found on the next two pages. This table shows the timeline for the different tasks previously described. All objectives and tasks are the responsibility of the PWERC. Tasks 4 and 8 will be done in collaboration with River Watch of the Red River Valley; tasks 5 and 9 will be done in collaboration with Project Wet and the State Water Commission.

3.3 Milestone table for the Prairie Water Education and Research Center

Task/*Responsible Organizations**	Output	Year 1	Year 2	Year 3	Year 4	Year 5
Objective 1 Task 1 Staff the PWERC	Staff the Center					
Task 2 Upgrade the Kathryn School	Upgrade facility for use as a Center					
Objective 2 Task 3 – Market the Center	Identify and notify potential users of the Center					
Objective 2 Task 4 Establish River Watch program / *Collaboration with River Watch of Red River Valley*	River Watch consortium in North Dakota					
Task 5 Provide onsite educational activities / *Collaboration with Project Wet*	On site educational activities					
Task 6 Provide outreach educational activities	Educational activities in schools					
Task 7 Develop displays and materials for use by the Center	Displays and materials about water education					
Objective 3 Task 8 Provide teacher training for the River Watch program / *Collaboration with River Watch*	Workshops for River Watch participants					
Task 9 Provide Teacher workshops/ *Collaborate with Project Wet*	Teacher Workshops					
Task 10 Work with VCSU Education Dept. to improve teacher preparation	Improved teacher preparation in water education and NPS pollution					

*The Prairie Waters Education and Research Center is responsible for all tasks involved in the project.

3.3 Milestone Table for the Prairie Water Education and Research Center (cont'd)

Task/Responsible Organizations*	Output	Year 1	Year 2	Year 3	Year 4	Year 5
Objective 4 Task 11 Biomonitoring Workshops for SCD personnel	Yearly workshop for SCD personnel					
Task 12 Survey need for additional workshops	List of additional workshops					
Objective 5 Task 13 Integrate Research lab into educational aspects of Center	Materials and information for Center use					
Objective 6 Task 14 Develop and Administer assessment	Gather assessment evaluation					
Task 15 Put together an advisory board that will meet twice a year	Create a working advisory board for the Center					

*The Prairie Waters Education and Research Center is responsible for all tasks involved in the project.

3.4 Valley City State University is well positioned to sponsor this program. Their programs in elementary education and Secondary Science education relate well to the mission of the Center. The University at one time rented the Kathryn school for use as a team building facility and knows the building well. Being part of the University System allows VCSU to obtain designation for PWERC as a Center in the system. Finally, the University has obtained state appropriated funds of $75,000 to initiate the Center.

Dr. Andre DeLorme is uniquely qualified to lead this project. Early in his career he worked as a naturalist for an Outdoor Environmental Education Center in New York state developing and presenting activities to elementary and middle school aged students. He then taught high school science for nine years, during which he spent several summers working as camp naturalist at different youth summer camps. This gives him insight into the workings of environmental education activities for youth and the needs and barriers faced by teachers in presenting environmental education activities. After obtaining his Ph.D he returned to North Dakota as a faculty member of Valley City State University and started the VCSU Macroinvertebrate Lab. This Lab has done a wide range of projects in North Dakota waters. They do macroinvertebrate identification contract work for the North Dakota Department of Health and other government agencies, have had a large National Institute of Health grant for the INBRE program in which they looked at heavy metals and atrazine concentrations and their effects in North Dakota rivers, performed Macroinvertebrate sampling for the Environmental Impact Statement for the federal proposed Devils Lake outlet, have designed and implemented a website covering aquatic macroinvertebrates found in North Dakota waters (funded by a 319 grant), and are currently working on a State Wildlife Grant to survey mussel species in North Dakota. In addition the lab houses the North Dakota Aquatic Macroinvertebrate Collection which will be a valuable resource to the Center.

The lab provides many experiences for undergraduate students to do research and present their findings. Over the last ten years 14 undergraduate students have given over 23 different poster or talk presentations at regional and national conferences. In those ten years the lab has brought in over $1 million in grants and contracts to VCSU.

4.0 COORDINATION PLAN

4.1 Valley City State University will be the sponsoring organization for this project. Dr. Andre DeLorme, Associate Professor of Biology will be in charge of the project. Valley City State University will supply the lab equipment, much of the furniture and presentation equipment, the North Dakota Aquatic Macroinvertebrate Collection, and the website for this project.

Currently we have two entities which we will partner with to deliver our project.

- River Watch program – We will work with the River Watch program of the Red River Valley to bring River Watch to North Dakota. This agreement will be an informal one. See attached letter of cooperation.
- Project Wet (State Water Commission) – The Center will collaborate with Bill Sharff from the State Water Commission in offering Project Wet activities at the center and in holding workshops for teachers on Project Wet. Our help is in the form of providing a facility for Project Wet to use. No funds will be used from this proposal to fund activities already financed for Project Wet. However, the collaboration in use of the facility and in discussions between Project Wet staff and Center staff will strengthen both Project Wet and the Centers efforts to increase water education in the state. This will be an informal agreement. See attached letter of cooperation.

As part of our coordination plan we will establish an advisory board. The purpose of the board is two-fold; to oversee the Center and ensure it is run properly, and to involve representative groups in the activities of the Center. Below is a list of people who have agreed to be board members and their agency or institution.

Ila LaChapelle – High School teacher at North Border High School. Ila is highly involved in the River Watch program.

Natalie Boe – grade school teacher at Valley City Schools.

Laura Kohn – North Dakota Department of Parks and Rec. Naturalist at Cross Ranch State Park.

A representative from the North Dakota Department of Agriculture. Discussed this with Jessica Johnson, she is willing to serve but says they are in the process of hiring an education/outreach person. Once this person is hired we will invite them to join the board.

Marty Egeland – North Dakota Game and Fish Outreach specialist.

Roxanne Johnson, NDSU Extension Service, Water Quality Associate.

Rhonda Vetsch, Emmons County Soil Conservation District.

We anticipate adding several more people to the list including a North Dakota Department of Health representative and a representative from the administration of Valley City State University.

4.2 A major feature of this venture is the wide-ranging support of governmental, educational, and citizen groups. As an example of this interest, the North Dakota Game and Fish recently provided approximately $22,000 to the Center to purchase supplies

and materials for use in educational activities and for production of educational materials. In addition the Valley Development Group, an economic development group in the Barnes County area, is excited about the idea of bringing a Center to the Kathryn area (see attached letter).

4.3 The project will work with existing educational activities, several of which are currently supported by 319 funds. We are in discussions with the North Dakota State Water Commission on how to integrate Project Wet into the Center. We have also had conversations with Diane Olson and Roxanne Johnson of the Envirothon project about acting as a resource for the aquatic portion of the program. In consultation with them, we will develop some training activities at the Center for teachers and students. We have talked to Karen Olstad about ECO Ed. and are looking forward to further discussions of how we can work together. Karen is also employed by the Barnes County Soil Conservation District and is interested in ways we can cooperate with that entity. We also contacted Rhonda Vetsch from the Emmons County Soil Conservation District as a representative of the North Dakota Conservation Districts Employee Association to discuss training for SCD personnel. She was very positive about the idea and we will be having further discussions, along with the NDDH, to develop a variety of workshops for this purpose.

We have also had conversations with groups not directly receiving 319 funds, but play a role in water and environmental education in North Dakota. We have contacted Eric Spencer and Laura Kohn from the North Dakota Department of Parks and Recreation about possible collaborations. We feel they will be valuable contacts for us as we start our program and that we can provide some expertise to them in the future. There is a possibility of future workshops involving our personnel and theirs. We contacted Jessica Johnson who works with the Department of Agriculture as an Ag Environmental Program specialist. Jessica was receptive to our Center and explained that they are in the process of hiring an outreach specialist who would be a good contact person between the Department of Agriculture and our Center. When that person is hired we will contact them and invite them to join our advisory board. We contacted Glenda Fauske who is the Coordinator for Information and Education at the North Dakota Forestry Service. She also is prominent in the Coalition for Conservation and Environmental Education and Project Learning Tree. She is also interested in our Center and we will have further conversations on how we can collaborate.

As stated earlier in this proposal, our goal is not to replace these activities or entities listed above, it is to help strengthen them and act as an instrument to help increase their distribution.

4.4 The Center will not duplicate the activities of any other Center in the area. In fact we believe that there is no other Center in the state that will have the focus we have with a building and location dedicated specifically to water issues education.

5.0 EVALUATION AND MONITORING PLAN

5.1 We will use both formative and summative assessments as part of our evaluation process. Our formative assessments take place on an ongoing basis and allow us to gauge our success and make needed changes as we go. To accomplish this all clientele will be given an opportunity to fill out comment forms and evaluation forms. We will have forms for teachers, students and workshop participants to fill out. We will especially encourage VCSU students to provide us feedback on their experiences. These forms will be read by staff personnel, discussed, acted upon, and then summarized in a final report which will become part of our summative assessment. Our summative assessment will take place once a year and will involve an overall examination of the Center. Each year we will prepare a report on the progress of the Center. This report will include an overview of the total number of K-12 students that have used the center, the total number of teachers who have undergone some type of training, the number of professionals that have taken part in a workshop at the site, the number of VCSU students involved in the Center either through research or as education majors, and research activities carried out. In addition, an expense report detailing the money received by the Center and the expenses of the Center will be prepared. This data will be collected, reviewed, and discussed by the Center Staff. A compilation of this data will be presented to major funding sources, the Vice President of Academic Affairs at VCSU, and the Advisory board. The Director will receive feedback from these entities and implement any needed changes.

6.0 BUDGET

6.1 See the attached tables for our budget. We have set our budget to match the Fiscal year for North Dakota, beginning July 1 and ending on June 30. For salaries in the second year of the proposal we have calculated a 5.5% salary increase since this is in line with the raises at the University within this biennial period. All raises after that are calculated at 3% per year. To factor in inflation, most numbers have been raised in year 4. Here is a brief detail of our matching funds:

- VCSU money match – Valley City State University has $75,000 in appropriated funds to spend on the Center.
- Building match – VCSU is covering all costs of leasing and maintaining the Center. As a match we are using the projected value of the building on a square foot basis. This value in the Valley City area would be approximately $10 per square foot per year (see attached letter). The building has an area of

approximately 14,000 square feet, however a portion of this will be used by the VCSU Macroinvertebrate lab so we will only use 9,000 sq. ft. of the square footage for our match. Calculating 9,000 sq. ft. times $10 per sq. ft. gives us a match of $90,000 per year for a total of $450,000. In our budget table we put in the amount needed to cover the 40% match, $74,733 per year for a total of $373,644.

- VCSU inkind match – This includes the value of the furniture and other items for the Center. We place the value at $10,000.
- Other inkind – this is inkind matching of the expenses by the schools. For the River Watch program it is 40% of their costs and for school groups coming to the centers it is their travel cost. The total over 5 years is $39,300.

Budget Table for Prairie Water Education and Research Center

Part 1 – Funding sources

	Year 1	Year 2	Year 3	Year 4	Year 5	Total
EPA Section 319 Funds	**$156,189**	**$133,658**	**$137,214**	**$155,506**	**$149,379**	**$731,946**
State and Local match:						
1) VCSU appropriated funds	$75,000					**$75,000**
2) Building Match	$74,732	$74,733	$74,733	$74,733	$74,733	**$373,664**
3) VCSU Inkind match	$10,000					**$10,000**
4) Participating schools match	$6,900	$6,900	$6,900	$9,300	$9,300	**$ 39,300**
Subtotals	**$166,632**	**$81,633**	**$81,633**	**$84,033**	**$84,033**	**$487,872**
Totals	**$322,821**	**$215,291**	**$218,847**	**$239,539**	**$234,412**	**$1,219,910**

Budget Table for Prairie Water Education and Research Center

Part 2 – Funding

Project Objectives and Tasks	Year 1	Year 2	Year 3	Year4	Year 5	Total Costs	Cash Match	In Kind Match	319 funds
Objective 1: Update and staff facility									
Salary/Fringe	102,140	107,757	110,990	114,320	117,749	552,956	0	0	552,956
Building upgrade	75,000					75,000	75,000	0	0
Subtotals	**$177,140**	**$107,757**	**$110,990**	**$114,320**	**$117,749**	**$627,956**	**$75,000**	**$0**	**$552,956**
Objective 2: Provide educational activities									
Advertising	800	400	400	500	500	2,600	0	0	2,600
Equipment/Supplies	27,250	2,500	2,500	12,600	3,600	48,700	0	0	48,700
Travel	8,200	8,200	8,200	11,150	11,150	46,900	0	32,400	14,500
Sub Teacher pay	1,250	1,250	1,250	2,000	2,000	7,750	0	3,100	4,650
Furniture/Displays	13,000	1,200	1,200	1,500	1,500	18,400	0	10,000	8,400
Subtotals	**$50,750**	$**13,550**	$**13,550**	$**27,750**	$**18,750**	$**124,350**	$**0**	$**45,500**	$**78,850**
Objective 3: Provide Teacher training									
Supplies	200	200	200	300	300	1,200	0	0	1,200
Travel	1,500	1,500	1,500	2,500	2,500	9,500	0	3,800	5,700
Workshops	1,200	2,000	2,000	2,000	2,000	9,200	0	0	9,200
Subtotals	**$2,900**	**$3,700**	**$3,700**	**$4,800**	**$4,800**	**$19,900**	$**0**	**$3,800**	**$16,100**
Objective 4: Provide a site for Professional workshops									
Workshops	1,800	2,200	2,200	2,400	2,400	11,000	0	0	11,000
Surveys	400	300	300	400	400	1,800	0	0	1,800
Subtotals	**$2,2 00**	**$2,500**	**$2,500**	**$2,800**	**$2,800**	**$12,800**	**$ 0**	**$0**	**$12,800**

Budget Table for Prairie Water Education and Research Center

Part 2 – Funding (Continued from previous page)

Project Objectives and Tasks	Year 1	Year 2	Year 3	Year4	Year 5	Total Costs	Cash Match	In Kind Match	319 funds
Objective 5: House the VCSU Macroinvertebrate Lab	**$0**	**$0**	**$0**	**$ 0**	**$0**	**$0**	**$0**	**$0**	**$0**
Objective 6: Assess success of the Center	450	450	450	500	500	2,350	0	0	2,350
Assessment	450	450	450	500	500	2,350	0	0	2,350
Advisory Board									
Subtotals	**$900**	**$900**	**$900**	**$1000**	**$1000**	**$4,700**	**$0**	**$0**	**$4,700**
10 % Administrative Costs	**$14,199**	**$12,151**	**$12,474**	**$14,136**	**$13,580**	**$66,540**	**$0**	**$0**	**$66,540**
Building Match	**$74,732**	**$74,733**	**$74,733**	**$74,733**	**$74,733**	**$373,664**	**$0**	**$373,664**	**$0**
TOTALS	**$322,821**	**$215,291**	**$218,847**	**$239,539**	**$233,412**	**$1,229,910**	**$75,000**	**$422,964**	**$731,946**

PWERC Overview of Salaries for the Five year period

	Director (21% salary)	Ed. Specialist (100% Salary)	Lab Manager (67.7% salary)		Totals
2010 Salary	$15,750	$40,000	$18,279		74,029
2010 Fringe	$2,867	$15,204	$10,040		28,111
2010 total	$18,617	$55,204	$28,319		102,140
2011 Salary	$16,616	$42,200	$19,284		78,100
2011 Fringe	$3,024	$16,040	$10,592		29,656
2011 Total	$19,640	$58,240	$29,877		107,757
2012 Salary	$17,115	$43,466	$19,863		80,444
2012 Fringe	$3,115	$16,521	$10,910		30,546
2012 Total	$20,230	$59,987	$30,773		110,990
2013 Salary	$17,628	$44,770	$20,459		82,857
2013 Fringe	$3,208	$17,017	$11,237		31,462
2013 Total	$20,836	$61,787	$31,696		114,319
2014 Salary	$18,157	$46,113	$21,073		85,343
2014 Fringe	$3,305	$17,528	$11,574		32,407
2014 Total	$21,462	$63,641	$32,647		117,750

Salary Totals

5 year salary total	$	400,773
5 year fringe total	$	152,183
5 year total	**$**	**552,956**

ATTACHMENT 1

Letters of Collaboration and Support

International Water Institute

Flood research and watershed education for the Red River Basin

Thursday, July 30, 2009

Dr, Andre DeLorme
Valley City State University
Rhoades Science Center 206
100 College Street SW
Valley City, ND 58072

Dear Dr. DeLorme,

On behalf of the International Water Institute (Institute) Board of Directors, please accept this letter of support for your efforts to develop a statewide resource for water education, research, and management in North Dakota.

The Institute has worked with partners across the Red River Basin to develop watershed education since its creation in 2000. We strongly support your efforts to build watershed education programming in North Dakota and believe your proposed vision for a Center will provide tremendous partnership opportunities as we work together to provide meaningful watershed education programming for students, teachers, and citizens.

Please feel free to contact me if the Institute can be of assistance with your proposal. We look forward to working with you in this exciting endeavor.

Sincerely,

Charles Fritz
IWI Director

International Water Institute, NDSU Dept 9030, PO Box 6050, Fargo, ND 58108-6050
Phone: 701-231-5266 Fax: 701-231-5613 Web: www.internationalwaterinstitute.org

NORTH BORDER SCHOOL DISTRICT #100

Neche-Pembina-Walhalla

Neche Office
318 Madisson Ave
Neche, ND
701-886-7604
Fax: 701-886-7552

Pembina Office
155 3rd Street
Pembina, ND 58271
701-825-6261
Fax: 701-825-6645

Walhalla Office
605 10th Street
P.O. Box 558
Walhalla, ND 58282
701 549-3751
Fax (701) 549-3753

July 27, 2009

To whom it may concern,

This is a letter of support for the Prairie Water Education and Research Center proposed for Kathyrn, North Dakota through Valley City State University.

I am a 9-12 science teacher in a small public school district set in a rural environment. This center would be extremely beneficial for the North Dakota Public School System. When the proposal was introduced to me, I was immediately excited for our students and those across the state. My students are very active in the River Watch program and with Project W.E.T. activities. I see this as a vehicle for us to move to a higher level of involvement in the field of Environmental Science.

The Prairie Water Education and Research Center would have four roles. Educational activities for school groups that would be held at the Center would greatly enrich the education of our students. To actually get to do hands on, minds on real life activities encourages students to stay active in the field of science. The teacher training role of the Center is very valuable for all of our states teachers so that they can return to their individual school with the knowledge and enthusiasm obtained in the training. Professional workshops are very important to keep teachers well informed and confident in the use of tools in environmental sciences available to them through the Center. Director Andre DeLorme and the Valley City State University Macro-invertebrate labs are known throughout the state and beyond for their expertise in this field. For our individual school system to be able to be a part of the lab research process is essential for our young people. Learning proper procedures, calibrating & maintaining equipment, evaluating of data, and communicating result are important for the students' futures.

Please support this proposal!

Ila LaChapelle
P.O. Box 216, Walhalla, ND 58282 phone# 701-549-3604

North Dakota State Water Commission

900 EAST BOULEVARD AVENUE, DEPT 770 • BISMARCK, NORTH DAKOTA 58505-0850
701-328-2750 • TDD 701-328-2750 • FAX 701-328-3696 • INTERNET: http://swc.nd.gov

July 28, 2009

Greg Sandness
NPS Coordinator
Gold Seal Center
918 East Divide, 4th Floor
Bismarck, ND 58501

Dear Greg:

The North Dakota State Water Commission (NDSWC), acting through its Project WET (Water Education for Teachers) program strongly endorses the Prairie Water Education and Research Center. This Center will provide additional opportunities for important environmental, water and science education and research for youth, educators, adults and professionals in North Dakota. Project WET targeted groups will receive hands-on interactive training using Project WET educational materials and other appropriate training resources through the Center.

The NDSWC has a stewardship responsibility of protecting and caring for the public's interest in the allocation and development of water resources in North Dakota. The NDSWC uses Project WET water education materials and resources to help North Dakota K-12 educators, youth leaders and students in grades K-12 become aware of their presence in the water and natural resource environments, their impact upon these resources, and their responsibility for their wise stewardship.

Project WET has fostered a strong partnership in North Dakota with the K-12 education and natural resource professional communities and a wide variety of local, state and federal agencies and organizations to help promote water resource education. This partnership will include the Prairie Water Education and Research Center. In addition, in relationship to the Center, Project WET will be involved in the educational and training processes and will be recipient of the results of the Center's enhancement of its own water education efforts.

This letter of commitment is to urge your favorable consideration for EPA approval of the Prairie Water Education and Research Center. The Center offers unique opportunities to enhance water education and research outcomes in North Dakota. Thank you for your time and efforts in the review of the grant proposal. Please contact me if you have questions.

Best Regards,

Bill Sharff

Bill Sharff, Director
North Dakota Project WET

BS:ds/1757-01

Red River Watershed Management Board

Mr. Greg Sandness, NPS Coordinator
Water Quality Division
North Dakota Department of Health
918 East Divide Ave, 4th Floor
Bismarck, ND 58501

July 29, 2009

Dear Mr. Sandness,

I am writing to express my enthusiastic support for development of the Prairie Waters Education and Research Center as proposed by Valley City State University. This Center will serve a valuable need for water education, research, and management for the State of North Dakota.

I have been involved in development of the student based high school River Watch program in the Red River Basin portion of Northwest Minnesota since 1995. We have grown from an initial 4 schools up to 25 schools now participating—learning science skills and gaining a better understanding of the dynamics of watershed management through real-world, hands-on monitoring of their local streams.

The Red River Watershed Management Board has funded River Watch program development in the MN portion of the Red River Basin. Through the International Water Institute, efforts have also been made to expand the program in North Dakota and Manitoba. The proposed Prairie Waters Education and Research Center would play a valuable role in assisting North Dakota schools to become involved in monitoring and foster a better understanding of local watershed conditions.

There has also been a strong interest in developing a companion biological monitoring component for the River Watch Program. We would very much look forward to utilizing Dr. Andre DeLorme's extensive expertise in this field in development of this biological monitoring program covering the Red River Basin and beyond. The teacher training being proposed as another service of this Center would also be of great interest for ongoing learning of current or proven watershed education and research activities.

With these considerations in mind, I strongly support the development of the VCSU Prairie Waters Education and Research Center as a valuable ally in delivery of watershed science services for present and future generations of residents of the Red River Basin and North Dakota at large.

Sincerely,

Wayne R. Goeken

Wayne Goeken, Monitoring Coordinator
Red River Watershed Management Board
40048 160th Ave SE
Erskine, MN 56535
218-574-2622

Valley Development Group
Reach Further

July 22, 2009

Mr. Greg Sandness, NPS Coordinator
Water Quality Division
North Dakota Department of Health
918 East Divide Avenue, 4th Floor
Bismarck, ND 58501

RE: Prairie Waters Education & Research Center

Dear Mr. Sandness:

The Valley City – Barnes County Development Corporation is pleased to offer its support for the establishment of the Prairie Waters Education & Research Center. We are also considering and may be providing financial support to assist Valley City State University. This is a tremendous opportunity to provide education and hands on learning in a location surrounded by natural resources important to its success. The Center will be a resource for water education, research and management which are all critical issues to not only North Dakota but all states. We have experienced water issues that have had severely negative and highly positive impacts on our lives. The Center can be a major resource to address both.

Teachers, students and professionals can experience education and research through the Center nestled in the Sheyenne River Valley surrounded by the Sheyenne River, Clauson Springs, Clauson Springs Dam, Little Yellowstone, Ft. Ransom, Ft. Ransom State Park and wetlands.

Benefits of establishing the Center at Kathryn include:

1. combining education, research and natural resources;
2. quality education for students and teachers who are learning by engaging in science;
3. water education, research and management for citizens;
4. educational tours for schools, individuals, groups, etc.;
5. providing a site for workshops and forums on water issues to many groups;
6. exposing the Scenic Byway and its amenities to visitors and residents;
7. impacting the economy of Kathryn and Valley City-Barnes County;
8. working cooperatively with and serving as a resource to State and local agencies to address water issues; and
9. serving as a resource to Federal agencies to address water issues.

The potential and excitement of the Center is huge and very real. We are pleased to offer our support to establishing the Prairie Waters Education & Research Center and ask for your approval of funds. Thank you.

Sincerely,

Jennifer Feist

Jennifer Feist
Director of Development

Valley City-Barnes County Development Corporation
250 Main St. W. P.O. Box 724 Valley City, ND 58072-0724 Phone: (701)845-1891 Fax: (701)845-1892

Valley Realty, Inc.

GEORGE GAUKLER
RES. PHONE 845-0376

JIM KNUTSON
RES. PHONE 845-4552

P.O. BOX 446 – 1330 WEST MAIN ST. – VALLEY CITY, NORTH DAKOTA 58072
PHONE: 701-845-1291

July 30, 2009

North Dakota Department of Health
Water Quality Division
918 East Divide Avenue, 4th Floor
Bismarck, ND 58501

Dear Mr. Greg Sandness,

I have been asked to evaluate the potential lease value of the school house located in Kathryn, North Dakota. The school is a one story building with the gymnasium and kitchen area in the center and class rooms located on the outside. The building contains about 14,000 square feet. It has been kept in reasonably good repair. Considering, the building could be used for a number of things; however, it is most suited to an educational environment.

Kathryn is a small community located about twenty miles south of Valley City. Larger communities in the area that may consider the commute to Kathryn reasonable, and therefore consider locating a business in Kathryn, are Jamestown, Lisbon and Fargo. When looking at leasable space within this region, you will find space leasing in the area of $8.00 to $10.00 per square foot.

It is my opinion that the school in Kathryn, North Dakota could reasonably be leased within the range of the regional lease rates of $8.00 to $10.00 per square foot.

Sincerely,

Jim Knutson
Broker
Valley Realty, Inc.